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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/566,921 | 01/31/2006 | Nobuo Imamura | 15682017US10SP19442 | 1169 |
| 26211 | 7590 | 11/16/2007 | EXAMINER | |
| FISH & RICHARDSON P.C. P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022 | | | MULLER, BRYAN R | |
| ART UNIT | | PAPER NUMBER | | |
| | | 3723 | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/566,921 | IMAMURA ET AL. |
| | Examiner | Art Unit |
| | Bryan R. Muller | 3723 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 31 January 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-4 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 31 January 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/31/06, 3/29/07</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because the reference numbers (two occurrences) "62(65)" in Fig. 4 appear as though they should be replaced either by the reference number "65" or "61(65)", as disclosed in the specification. Portion 65 is disclosed as a side piece of the guide piece 61 and portion 62 is disclosed as a notch portion. Thus, the side piece 65 is not part of the notch portion 62, for which the reference number 62(65) indicates. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:
 - a. A comma (,) should be inserted after the reference numbers 14, 13, 16 and 15 in lines 18, 20, 21 and 22, respectively of page 5 in the specification.
 - b. Reference letter "L" should be inserted after the word "length" in line 12 on page 8 of the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The preamble of claim 1 indicates that the claim is directed to a method of chip removal. However, the body of the claim fails to positively claim any method steps that are part of the method of chip removal, thus making the scope of the claim unclear. For the sake of the current Office Action, it is assumed by the Examiner that the method is intended to include the steps of "providing an air blow nozzle that changes the air flow inside the nozzle into a spiral flow and directing air that is jetted out of the nozzle against a bottom portion of a machined hole using such that the spiral flow then blows upward like a tornado from a vicinity of the bottom portion of the machined hole in a direction towards an aperture portion of the machined hole to uplift and remove

the residue that is inside the machined hole by the spiral flow". It is suggested by the Examiner that the applicant clarify what steps are intended to be included in the method claim by positively reciting each step using descriptive action terms such as "providing" and "directing".

5. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim attempts to define the structure of the nozzle being claimed based on the structure of the machined hole, for which the nozzle is intended to be used and based on the intended function relative to the machined hole. However, the machined hole is not a part of the claimed apparatus, nor is the machined hole provided with any defining structure in the claims that would positively provide structure to the apparatus, as claimed. Thus, the scope of the claim is unclear because the structure of the machining hole is not clearly defined in such a way as to clearly provide structure to the nozzle. It is suggested by the Examiner that the applicant amend the claim to define the structure of the nozzle by describing the actual structure of the nozzle instead of relating the intended function relative to the machined hole.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Haruki et al. (Japanese Publication No. 2002/361192).

8. In reference to claim 1, Haruki discloses a method of removing chips that are adhered to an interior of a substantially bag-shaped hole in a work piece (10), wherein the method includes the steps of providing an air blow nozzle (1) that changes the air flow inside the nozzle into a spiral flow (Fig. 6) and directing air that is jetted out of the nozzle against a bottom portion (10a) of a hole using such that the spiral flow will then inherently blows upward like a tornado (as shown in Fig. 5, the air will blow upward from the bottom of the hole, and due to the spiral flow out of the nozzle, the upward flow will inherently maintain a similar spiral flow, similar to a tornado) from a vicinity of the bottom portion of the machined hole in a direction towards an aperture portion of the machined hole to uplift and remove the residue that is inside the machined hole by the spiral flow. Although Haruki does not specifically disclose that the hole is a machined hole in the work piece, the method step does not include the step of machining the hole. Therefore, the method steps disclosed by Haruki, when applied to any hole having chips therein will anticipate the method of claim 1. Further, Haruki does disclose that the chips are present as cutting remains (paragraph 2 of Detailed Description translation), wherein cutting is most likely considered to be a machining step, thus it could be assumed that the process disclosed by Haruki is intended for a machined hole.

9. In reference to claim 2, Haruki discloses a nozzle having a distal end that is intended to be, and is inherently capable of being inserted into a machined hole, and a spiral flow creating portion (2 and 3) that is provided in the nozzle distal end portion and

changes the flow of air that is circulating inside the nozzle into a spiral flow (as seen in Fig. 6).

10. In reference to claim 3, each of the portions of the nozzle immediately surrounding each of the jet holes (2) in the distal end of the nozzle of Haruki, may be considered to be guide pieces, because they form the jet holes, which guide the air into the spiral flow. Therefore, the nozzle of Haruki is considered to have a plurality of guide pieces formed in the distal end portion of the nozzle. Further, the guide pieces are positioned around a circumference of the nozzle and are each inclined at equivalent angles relative to the longitudinal axis of the nozzle as they pass through the nozzle in the longitudinal direction, thus forming a helical shape along the circumference of the nozzle. Therefore, the plurality of guide pieces, arranged as helical portions are considered to be in the shape of the threads of a screw, thus forming a cross sectional shape of a screw. Further, the definition of the term helix ("*Geometry*, the curve formed by a straight line drawn on a plane when that plane is wrapped around a cylindrical surface of any kind, esp. a right circular cylinder, as the curve of a screw."¹) specifically relates a helical shape to the curve of a screw, clearly supporting that the guide sections of the nozzle of Haruki are twisted into a screw shape.

11. In reference to claim 4, the nozzle of Haruki is shown as forming a spiral flow (Fig. 6) in the opposite direction that the applicant discloses (Fig. 6 of the current application) as providing a flow that turns in the same direction in which the thread is

¹ *Dictionary.com Unabridged* (v 1.1)

Based on the Random House Unabridged Dictionary, © Random House, Inc. 2006.

loosened. However, the nozzle of Haruki would be inherently capable of being used to remove chips (debris) from a female threaded hole that has a reverse thread, in which case, the spiral flow will be in the same direction in which the reverse thread is loosened.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The publication of Japanese application 91008/1988 (Laid-open No. 15244/1990) discloses a similar nozzle, providing spiral airflow, which has similar structure to the applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan R. Muller whose telephone number is (571) 272-4489. The examiner can normally be reached on Monday thru Thursday and second Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail III can be reached on (571) 272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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Patent Examiner
Art Unit 3723
10/26/2007